

Appln No. 10/692,714  
Amdt date June 27, 2006  
Reply to Office action of March 27, 2006

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Please amend claims 1 and 14.

1. (Currently Amended) A catheter comprising:  
an elongated catheter body having a proximal end, a distal end, and at least one lumen extending longitudinally therethrough;  
a needle electrode at the distal end of the catheter body; and  
a mapping assembly at the distal end of the catheter body and comprising:  
a support structure having a generally cylindrical base mounted on the distal end of the catheter body, the base having proximal and distal ends, and at least two pre-shaped flexible support arms, each support arm having a proximal end attached to the distal end of the generally cylindrical base and a free distal end,  
at least two non-conductive coverings, each non-conductive covering provided in surrounding relation to a corresponding one of the at least two support arms; and  
at least one electrode mounted over each of the at least two non-conductive coverings.
2. (Original) The catheter of claim 1, further comprising a non-conductive covering over the base of the support structure.
3. (Original) The catheter of claim 1, wherein the base and the at least two support arms of the support structure are a unitary structure.
4. (Original) The catheter of claim 1, wherein each support arm is tapered from its proximal end to its distal end.

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5. (Original) The catheter of claim 1, wherein each support arm has a disc-shaped region at its distal end.

6. (Original) The catheter of claim 1, wherein the support structure comprises at least five support arms.

7. (Original) The catheter of claim 1, wherein at least two electrodes are mounted over each non-conductive covering.

8. (Original) The catheter of claim 1, wherein at least four electrodes are mounted over each non-conductive covering.

9. (Original) The catheter of claim 1, further comprising a marker band mounted on one of the non-conductive coverings.

10. (Original) The catheter of claim 1, wherein the support structure comprises Nitinol.

11. (Original) The catheter of claim 1, wherein the base is a right circular cylinder.

12. (Original) The catheter of claim 1, wherein the at least two support arms are evenly spaced about the perimeter of the base.

13. (Original) The catheter of claim 1, further comprising at least one location sensor mounted in the distal end of the catheter body.

14. (Currently Amended) A catheter comprising:

an elongated catheter body having a proximal end, a distal end, and at least one lumen extending longitudinally therethrough;

a needle electrode at the distal end of the catheter body; and

a mapping assembly at the distal end of the catheter body and comprising:

a unitary support structure having a base in the shape of a right circular cylinder mounted on the distal end of the catheter body, the base having proximal and distal ends, and at least five pre-shaped flexible support arms, each support arm having a proximal end attached to the distal end of the generally cylindrical base and a free distal end, wherein the support arms are evenly spaced about the perimeter of the base;

at least five non-conductive coverings, each non-conductive covering provided in surrounding relation to a corresponding one of the at least five support arms;

at least two electrodes mounted over each of the at least five non-conductive coverings; and

a non-conductive covering over the base of the support structure.

15. (Original) The catheter of claim 14, wherein each support arm is tapered from its proximal end to its distal end.

16. (Original) The catheter of claim 14, wherein each support arm has a disc-shaped region at its distal end.

17. (Original) The catheter of claim 14, wherein at least four electrodes are mounted over each non-conductive covering.

18. (Original) The catheter of claim 14, further comprising a marker band mounted on one of the non-conductive coverings.

19. (Original) The catheter of claim 14, wherein the support structure comprises Nitinol.

20. (Original) The catheter of claim 14, further comprising at least one location sensor mounted in the distal end of the catheter body.

21. (Previously Presented) A catheter comprising:  
an elongated catheter body having a proximal end, a distal end, and at least one lumen extending longitudinally therethrough;

a mapping assembly at the distal end of the catheter body and comprising:

a support structure having a generally cylindrical base mounted on the distal end of the catheter body, the base having proximal and distal ends, and at least two pre-shaped flexible support arms, each support arm having a proximal end attached to the distal end of the generally cylindrical base and a free distal end, wherein each support arm has a disc-shaped region at its distal end,

at least two non-conductive coverings, each non-conductive covering provided in surrounding relation to a corresponding one of the at least two support arms; and

at least one electrode mounted over each of the at least two non-conductive coverings.

22. (Previously Presented) A catheter comprising:  
an elongated catheter body having a proximal end, a distal end, and at least one lumen extending longitudinally therethrough;

a mapping assembly at the distal end of the catheter body and comprising:

a unitary support structure having a base in the shape of a right circular cylinder mounted on the distal end of the catheter body, the base having proximal and distal ends, and at least five pre-shaped flexible support arms, each support arm having a proximal end attached to the distal end of the generally cylindrical base and a free distal end, wherein the support arms are

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evenly spaced about the perimeter of the base and each support arm has a disc-shaped region at its distal end;

at least five non-conductive coverings, each non-conductive covering provided in surrounding relation to a corresponding one of the at least five support arms;

at least two electrodes mounted over each of the at least five non-conductive coverings; and

a non-conductive covering over the base of the support structure.

23. (Previously Presented) The catheter of claim 1, wherein the needle electrode is extendable and retractable.

24. (Previously Presented) The catheter of claim 14, wherein the needle electrode is extendable and retractable.